lated into patients experiencing 37% higher average pain intensity, an 8% decrease in QoL, and total additional costs of ~$1277 annually. This study provided a conceptual framework to model the health-economic impact of dosing variations based on actual dosing information in a realistic and intuitive way. This novel concept can also be applied to other disease areas to assess pharmaco-economic outcomes.

**AD4**

### THE IMPACT OF PHARMACIST INTERVENTION ON PATIENTS' ADHERENCE TO ANTIDEPRESSANT MEDICATION AND PATIENT-REPORTED OUTCOMES

Aljumah K, Donyai P
University of Reading, Reading, UK

**OBJECTIVES:** Medications, regardless of effectiveness, do not work in patients who do not take them. Poor adherence to prescribed medication regimens has been a well-recognized problem in all of medicine and patients with chronic conditions, such as depression, are less likely to follow prescription orders than those with acute conditions. In depression, several studies have reported a medication adherence rate of about 72% within the first month of treatment which drops sharply to about 43% after 6 months of treatment. Pharmacists may be able to help improve adherence rates, yet no single review has examined the impact of pharmacist interventions on adherence to antidepressants. The aim of this study was to summarize the literature and determine whether pharmacist intervention will 1) improve adherence in depression; and 2) improve patient-reported outcomes (PRO). **METHODS:** A systematic review of the literature was conducted using the PubMed database to retrieve studies examining the impact of pharmacist interventions on adherence to antidepressants and on patient-reported outcomes, from 1990 to 2010. The following MESH terms were used: pharmacist intervention, medication intervention, depression, medication adherence, health-related quality of life, patient reported outcomes, and antidepressants. a total of 25 papers were retrieved with 11 excluded on the basis of abstract or full-text review resulting in 14 studies suitable for inclusion. **RESULTS:** The most common intervention strategy that pharmacists utilized was a combination of drug monitoring (baseline assessment and treatment follow-up), drug counseling by telephone and personal interviews, and patient education (about medication side effects).The results of these interventions were positive, improvement varying from 15% to 19%, and also, HRQL improved to varying degrees. **CONCLUSIONS:** The studies support the roles of pharmacists in providing interventions to improve medication adherence in depression. The results can provide a basis for future studies examining the cost-effectiveness of pharmacist interventions in depression.

## PODIUM SESSION II: BIOLOGIC AGENT STUDIES AND METHODS

**BL1**

### COST-EFFECTIVENESS, VALUE OF INFORMATION, AND BUDGET IMPACT OF CERTOLIZUMAB PEGOL COMPARED TO SUBCUTANEOUS TUMOR NECROSIS FACTOR (TNF) INHIBITORS AND METHOTREXATE IN THE TREATMENT OF MODERATE-TO-SEVERE RHEUMATOID ARTHRITIS IN FINLAND

Soini EJ[1], Hallinen T[1], Taiha M[2], Honkanen V[2]
[1]ESiOR Ltd, Kuopio, Finland; [2]UCB Pharma Oy Finland, Espoo, Finland

**OBJECTIVES:** To analyze the cost-effectiveness, multinomial expected value of perfect information (mEVPI), and budget impact of certolizumab pegol (CZP) compared to the used first-line subcutaneously administered tumor necrosis factor (TNF) – inhibitors + methotrexate (MTX) and MTX alone in the treatment of moderate-to-severe rheumatoid arthritis (RA) in the Finnish setting. **METHODS:** An Excel-based, probabilistic lifetime Markov cohort model was developed to assess the cost-effectiveness and mEVPI. Treatment efficacy was measured using the ACR-responses (no ACR20, ACR20, ACR50, or ACR70) at 3 months. ACR estimated response rates were based on adjusted indirect comparison (MTX as the common comparator) of published clinical trials. The health state utilities were estimated from the CZP-trials using regression models. The inpatient days were linked to patients' HAQ-scores according to published literature. Cost estimates from Finnish sources were used and assessed from payer perspective. Cost and health outcomes were discounted with annual 3% discount rate. Undiscounted budget impact of CZP was estimated for years 2010–2013 using Excel model. Equal inpatient costs and treatment efficacies were assumed for all TNF inhibitors. **RESULTS:** The lifetime costs for CZP + MTX, etanercept + MTX, and MTX alone were €179,986, €201,781, and €186,986, respectively. The corresponding QALYs (life-years) were 7.041 (15.697), 6.838 (15.646), and 6.336 (15.547). According to the cost-effectiveness acceptability frontier, CZP + MTX was the optimal treatment option with 58% to 73% probability of being cost-effective at willingness-to-pay values of €0–30,000 per QALY gained. The respective mEVPI was €5058–3701 per patient. Based on clinical responses, CZP + MTX dominated also adalimumab + MTX with 100–85% probability of cost-effectiveness (€0–30,000 per QALY gained; EVPI €0–218 per patient). The introduction of CZP produced annual budgetary net savings of €0.17–0.80 million during 2010–2013 in budget impact analysis. **CONCLUSIONS:** This analysis shows that, on average, CZP + MTX dominated the other subcutaneously injected TNF inhibitors considered or MTX alone in the Finish setting. The use of CZP resulted in budgetary net savings.

**BL2**

### PATIENT PREFERENCES FOR BIOLOGIC AGENTS IN RHEUMATOID ARTHRITIS: A DISCRETE CHOICE EXPERIMENT

Augustovski F[1], Beratarrechea A[2], Irazola V[1], Rubinstein F[1], Tesolin P[3], Gonzalez JM[4], Lencina V[5], Scolnik M[3], Wainmann C[5], Navarta D[3], Citera G[5], Soriano E[3]
[1]Institute for Clinical Effectiveness and Health Policy, Buenos Aires, Argentina; [2]IECS & Hospital Italiano de Buenos Aires, Buenos Aires, Argentina; [3]Hospital Italiano de Buenos Aires, Buenos Aires, Argentina; [4]RTI Health Solutions, Research Triangle Park, NC, USA; [5]Instituto de Rehabilitación Psicofísica (I.R.E.P.), Buenos Aires, Argentina

**OBJECTIVES:** To conduct a Discrete Choice Experiment (DCE) to elicit rheumatoid arthritis (RA) patients' preferences regarding treatment with BIOLOGIC AGENTS (BA). **METHODS:** We designed a DCE with RA patients and seven treatment attributes: effectiveness, route of administration, frequency of administration, local and systemic adverse effects, severe infections, and out-of-pocket costs. RA patients who had never received BA from one private and one public hospital in Buenos Aires were included. a multinomial probit regression model (MNP) was used. **RESULTS:** A total of 240 RA participated (mean age 56.2 [SD 13.5], 87% women, median disease duration 9 years), all receiving conventional DMARDs (84.5% Metotrexate); median Clinical Disease Activity Index 7.5, and median HAQ 0.5. All the attributes showed to be significant factors affecting choice of treatment. Most attributes levels showed coefficients with the expected signs and were statistically significant. Attributes importance ranking was in the following order: cost, systemic adverse events, frequency of administration, efficacy, route of administration, local adverse events, and serious infection (table). Patients had relatively high monthly WTP for treatments that significantly reduced the risk of systemic adverse events: mean 331 (95% CI: 212–499) US dollars ($) for a reduction from 30% to 10%; of decreasing dose frequency: mean $302 (95% CI: 183–461) for going from weekly to monthly administration; increasing treatment efficacy: mean: $386 (95% CI: 285–532) for 40 versus 20 mm reduction in patient global assessment VAS), and also for switching from an intravenous to an oral therapy: mean $262 (95% CI: 262–555). **CONCLUSIONS:** Different treatment attributes had a significant and different influence in RA patients' choice of BA. The results of the DCE indicated that most respondents would be willing to pay for treatments that importantly reduced the risk of systemic adverse effects, dose frequency, with increased treatment efficacy, and with an oral route of administration.

**BL3**

### A CONCEPTUAL MODEL FOR POMPE DISEASE: THE BACKBONE FOR AN ECONOMIC EVALUATION OF AN ORPHAN DRUG

Kanters TA[1], Redekop WK[1], Hagemans MLC[2], Van der Ploeg AT[2], Hakkaart L[1]
[1]Erasmus University Rotterdam, Rotterdam, The Netherlands; [2]Erasmus University Medical Center, Rotterdam, The Netherlands

**OBJECTIVES:** Studies of orphan drugs are, by nature, confronted with small patient populations, meaning that randomized controlled trials (RCTs) will have limited statistical power. Enzyme replacement therapy (ERT) is an orphan drug for Pompe disease, a metabolic orphan disease, with a prevalence in the The Netherlands of 1 per 40,000 births. In order to estimate the (cost-)effectiveness of ERT, we developed a disease model founded on all available clinical knowledge. **METHODS:** We developed a disease model with a strong clinical basis which linked disease-related factors with quality-adjusted life-years. The structure of the Wilson-Cleary health outcomes model was used as a blueprint. Based on literature and expert opinion, clinically relevant aspects of Pompe disease were applied to the distinct entities of the Wilson-Cleary model. Data from a Dutch cohort study (n = 94, mean follow-up = 2.7 years) were used to quantify the relationships between the different entities by means of regression analyses. **RESULTS:** A conceptual model for Pompe disease was developed by establishing a clinically plausible pathway from enzyme activity ("biological variables" in Wilson-Cleary model) via muscle strength and respiratory function ("symptom status"), and MCS and PCS from the SF-36 ("functional status") to the final entity of health utility ("quality of life" using EQ-5D and SF-6D). The strengths of the relationships between these entities were based on the results of the regression analyses. Patient characteristics such as age, gender, and disease duration affected all entities in the model. Therapy was assumed to affect only enzyme activity in the model; all other health outcomes could only be affected via an impact on enzyme activity. **CONCLUSION:** We have developed a clinically based model to assess the long-term cost-effectiveness of ERT in Pompe disease. The approach used here is expected to be applicable in the assessment of other orphan drugs.

**BL4**

### COST-EFFECTIVENESS OF TREATMENT STRATEGIES FOR ANKYLOSING SPONDYLITIS: FIRST RESULTS OF A DISCRETE EVENT SIMULATION MODEL

Tran Duy A[1], Boonen A[2], Arsenijevic J[1], Severens JL[3]
[1]Maastricht University, Maastricht, Limburg, The Netherlands; [2]Maastricht University Hospital, Maastricht, Limburg, The Netherlands; [3]Erasmus University Rotterdam, Rotterdam, South Holland, The Netherlands

**OBJECTIVES:** Owing to rapid, persistent efficacy in reducing pain and preventing structural damage, tumor necrosis factor-alpha inhibitors (anti-TNFs) has revolutionized the treatment of ankylosing spondylitis (AS). However, the high price of anti-TNFs has limited their use. Recent studies suggest that increased medication costs by adopting anti-TNFs may be offset by decreased values of other cost categories. In most cost-effectiveness studies on AS treatments, costs were estimated as a whole. Our